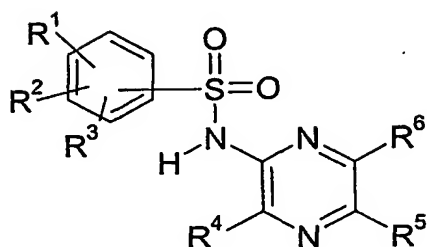


## CLAIMS

1. A compound of formula (I) or a pharmaceutically acceptable salt or solvate thereof:



(I)

in which:

R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are independently hydrogen, halogen, cyano, CF<sub>3</sub>, OCF<sub>3</sub>, OC<sub>1-6</sub> alkyl or C<sub>1-6</sub> alkyl;

R<sup>4</sup> is halogen, CO<sub>2</sub>R<sup>12</sup>,

C<sub>1-6</sub> alkoxy where the alkyl group may form a 3-6 membered saturated ring or may be substituted with 1-3 fluorine atoms or a cyano group;

C<sub>3-6</sub> alkenyloxy or C<sub>3-6</sub> alkynyloxy where either may be optionally substituted with hydroxy or NR<sup>14</sup>R<sup>15</sup>;

OC<sub>1-6</sub> alkyl-X-C<sub>1-6</sub> alkyl where the alkyl groups may form a 3-6 membered saturated ring;

OC<sub>1-6</sub> alkylR<sup>11</sup>, or OC<sub>2-6</sub> alkyl-X-R<sup>11</sup> where the alkyl group may form a 3-6 membered saturated ring and is optionally substituted with 1-3 groups selected from hydroxy, halogen, NR<sup>14</sup>R<sup>15</sup>, SR<sup>13</sup>, S(O)<sub>2</sub>R<sup>13</sup>, S(O)R<sup>13</sup> or COR<sup>13</sup>;

OC<sub>1-6</sub> alkylR<sup>16</sup>;

$R^5$  and  $R^6$  are independently hydrogen, cyano, halogen,  $CO_2R^{12}$ ,  $CONR^{14}R^{15}$ ;

$C_{1-6}$  alkyl optionally substituted by hydroxy,  $NR^{14}R^{15}$ , or 1-3 fluorines;

5  $C_{1-6}$  alkyl $R^{11}$  or  $XCH(R^{11})C_{1-6}$  alkyl or  $XCH(R^{16})C_{1-6}$  alkyl where the alkyl group may be optionally substituted with 1-3 groups selected from hydroxy, and  $NR^{14}R^{15}$ ;

$NR^{14}R^{15}$ ;  $N(R^{11})R^{11}$ ;  $X-(CH_2)_qNR^{14}R^{15}$ ;  $(CH_2)_nNR^{14}R^{15}$ ;  $NHC(O)C_{1-6}$  alkyl optionally substituted by one or more hydroxy groups,

10

$C_{3-6}$  alkynyl or  $C_{3-6}$  alkenyl optionally branched and optionally substituted with 1-3 groups selected from hydroxy, cyano, halogen and  $=O$ ;

15  $R^{11}$ ;  $X-R^{11}$ ;  $X-R^{12}$ ;  $X-C_{1-6}alkylR^{16}$ ;  $X-R^{16}$ ;  $X-(CH_2)_nCO_2R^{12}$ ;  $X-(CH_2)_nCONR^{14}R^{15}$ ;  
 $X-(CH_2)_nR^{11}$ ;  $X-(CH_2)_nCN$ ;  $X-(CH_2)_qOR^{12}$ ;  $(CH_2)_nOR^{12}$ ;  
 $(CH_2)_n-X-R^{11}$ ;  $X-(CH_2)_qNHC(O)NHR^{12}$ ;  $X-(CH_2)_qNHC(O)R^{12}$ ;  
 $X-(CH_2)_qNHS(O)_2R^{12}$ ;  $X-(CH_2)_qNHS(O)_2R^{11}$ ;  $X-C_{3-6}alkenyl$ ;  $X-C_{3-6}alkynyl$ ;

$n$  is 1, 2, 3, 4 or 5;

20

$q$  is 2, 3, 4, 5 or 6;

$X$  is  $NR^{13}$ ,  $O$ ,  $S$ ,  $S(O)$ ,  $S(O)_2$ ;

25

$R^{11}$  is an aryl group or a 5-7 membered heteraromatic ring containing 1-4 heteroatoms selected from nitrogen, oxygen or sulphur each of which can be optionally substituted by 1-3 groups selected from halogen,  $C(O)NR^{14}R^{15}$ ,  $C(O)OR^{12}$ , hydroxy,  $=O$ ,  $=S$ ,  $CN$ ,  $NO_2$ ,  $COR^{13}$ ,  $NR^{14}R^{15}$ ,  $X(CH_2)_qNR^{14}R^{15}$ ,  $(CH_2)_nNR^{14}R^{15}$ ,  $(CH_2)_nOH$ ,  $SR^{13}$ ,  $S(O)R^{13}$ ,  $S(O)_2R^{13}$ ,  $C_{1-6}$  alkyl- $X$ - $C_{1-6}$  alkyl,  $C_{1-6}$  alkyl or  $C_{1-6}$  alkoxy where the alkyl group may form a 3-6

30

membered ring or is optionally substituted with 1-3 groups selected from hydroxy, halogen,  $NR^{14}R^{15}$ ,  $SR^{13}$ ,  $S(O)R^{13}$ ,  $S(O)_2R^{13}$ ;

$R^{12}$  and  $R^{13}$  are independently hydrogen or  $C_{1-6}$  alkyl where the alkyl group may be substituted with 1-3 fluorine atoms or may form a saturated 3-6 membered ring;

35

$R^{14}$  and  $R^{15}$  are independently hydrogen,  $C_{1-6}$  alkyl,  $C_{3-6}$  cycloalkyl or  $(CH_2)_qOH$ ,

or R<sup>14</sup> and R<sup>15</sup> together with the nitrogen atom to which they are attached form a 4-8 membered saturated ring containing 1-3 heteroatoms selected from nitrogen, oxygen and sulphur and optionally substituted by C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl-OH, or hydroxy; and

R<sup>16</sup> is a 4-8 membered saturated ring containing 1-3 heteroatoms selected from nitrogen, oxygen or sulphur and optionally substituted with 1-3 groups selected from hydroxy, cyano, halogen and =O,

provided that:

- when R<sup>4</sup> is halogen or C<sub>1-4</sub>alkoxy and R<sup>5</sup> is hydrogen, halogen, C<sub>1-4</sub>alkyl, C<sub>1-2</sub>alkoxy, C<sub>1-2</sub>alkylthio, trifluoromethyl or ethynyl and when one of R<sup>1</sup>, R<sup>2</sup> or R<sup>3</sup> is C<sub>1-6</sub>alkyl or C<sub>1-6</sub>alkoxy and is meta to the sulphonamide group then the group ortho to both the sulphonamide group and the C<sub>1-6</sub>alkyl or C<sub>1-6</sub>alkoxy group is not hydrogen,
- when R<sup>4</sup> is halogen or C<sub>1-4</sub>alkoxy and R<sup>5</sup> is hydrogen, halogen, C<sub>1-4</sub>alkyl, C<sub>1-2</sub>alkoxy, C<sub>1-2</sub>alkylthio, trifluoromethyl or ethynyl and when one of R<sup>1</sup>, R<sup>2</sup> or R<sup>3</sup> is C<sub>1-6</sub>alkyl or C<sub>1-6</sub>alkoxy and is ortho to the sulphonamide group then the group ortho to the C<sub>1-6</sub>Alkyl or C<sub>1-6</sub>alkoxy and also meta to the sulphonamide group is not hydrogen,
- when two of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> are hydrogen and the other is a methyl group para to the sulphonamide and R<sup>4</sup> is methoxy then R<sup>5</sup> is not hydrogen or bromo, and
- when R<sup>5</sup> is methyl and R<sup>6</sup> is methoxy and one of R<sup>1</sup>, R<sup>2</sup> or R<sup>3</sup> is bromo or iodo and the other two are both hydrogen, then the bromo or iodo group is not ortho to the sulphonamide group..

2. A compound according to claim 1 in which one of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> is hydrogen and the other is chloro, bromo or methyl.

3. A compound according to claim 1 or 2 in which R<sup>4</sup> is C<sub>1-6</sub> alkoxy such as methoxy, 2-furanylmethoxy, bromo, chloro, 2-methoxyethoxy, (5-methyl-3-isoxazolyl)methoxy, pyridylmethoxy, 3-pyridazinylmethoxy, methoxy, 2-(1-imidazolyl)ethoxy, (2-methyl-4-oxazolyl)methoxy and 4-methoxyphenylmethoxy.

4. A compound according to any one of claims 1 to 3 in which R<sup>5</sup> is hydrogen, halogen such as bromo and chloro, phenyl, C<sub>1-6</sub> alkyl such as methyl, CH<sub>2</sub>OH, cyano and

## 2-aminothianethiol

5. A compound according to any one of claims 1 to 3 in which R<sup>6</sup> is hydrogen, C<sub>1-6</sub> alkyl, CH<sub>2</sub>OH and halogen.

6. A compound according to claim 1 in which is:

2,3-Dichloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)-benzenesulphonamide

*N*-(6-Chloro-3-methoxy-2-pyrazinyl)-2,3,4-trifluorobenzenesulphonamide

3-Chloro-*N*-(6-chloro-3-methoxy-2-pyrazinyl)-2-methylbenzenesulphonamide

2,3-Dichloro-*N*-(6-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide

2,3-Dichloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-2,5-dichlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-3,5-dichlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-2,4-dichlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-3,4-dichlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-4-chlorobenzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-3-chlorobenzenesulphonamide

*N*-(3-Methoxy-5-methyl-2-pyrazinyl)-2-fluorobenzenesulphonamide

*N*-(3-Methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide

*N*-(3-Methoxy-5-methyl-2-pyrazinyl)-2-iodobenzenesulphonamide

*N*-(3-Methoxy-5-methyl-2-pyrazinyl)-3-fluorobenzenesulphonamide

2-[[[3-Methoxy-5-methyl-2-pyrazinyl]amino]sulphonyl]benzonitrile

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)benzenesulphonamide

*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-2-iodobenzenesulphonamide

2,3-Dichloro-*N*-[3-(2-furanylmethoxy)-5-methyl-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(5-methyl-3-isoxazolylmethoxy)-2-

pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(2-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(6-methyl-2-pyridinylmethoxy)-2-

pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(4-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(3-methyl-2-pyridinylmethoxy)-2-

pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-methyl-3-(3-pyridazinylmethoxy)-2-pyrazinyl]benzenesulphonamide

- 2,3-Dichloro-*N*-[3-(2-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-(3-methoxy-2-pyrazinyl)benzenesulphonamide  
*N*-[5-Bromo-3-(2-pyrazinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
5 *N*-[5-Bromo-3-(1-methyl-6-oxo-1,6-dihydro-3-pyridinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
*N*-[5-Bromo-3-(3-pyridazinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
*N*-[5-Bromo-3-(3-pyridinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
*N*-[5-Bromo-3-(5-pyrimidinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
10 *N*-[5-Chloro-3-(3-pyridinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
*N*-[5-Chloro-3-(5-pyrimidinylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
2-Chloro-*N*-(6-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
4-Chloro-*N*-(6-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
*N*-(6-Chloro-3-methoxy-2-pyrazinyl)-2,4-dichlorobenzenesulphonamide  
15 *N*-(6-Chloro-3-methoxy-2-pyrazinyl)-3,4-dichlorobenzenesulphonamide  
3-Chloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)-2-methylbenzenesulphonamide  
2-Chloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide  
3-Chloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide  
4-Chloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide  
20 2,4-Dichloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide  
3,4-Dichloro-*N*-(3-methoxy-5-methyl-2-pyrazinyl)benzenesulphonamide  
*N*-(5-Bromo-3-methoxy-2-pyrazinyl)-2-trifluoromethoxybenzenesulphonamide  
3-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)-2-methylbenzenesulphonamide  
2-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
25 3-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
4-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
*N*-(5-Chloro-3-methoxy-2-pyrazinyl)-2,4-dichlorobenzenesulphonamide  
2,3-Dichloro-*N*-[3-methoxy-5-(4-morpholinyl)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[3,5-dimethoxy-2-pyrazinyl]benzenesulphonamide  
30 2,3-Dichloro-*N*-[3-methoxy-5-(1-pyrrolinyl)-2-pyrazinyl]benzenesulphonamide  
3-Chloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)-2-methylbenzenesulphonamide  
2,3-Dichloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2-Chloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
3-Chloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
35 4-Chloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2,4-Dichloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide

3,4-Dichloro-*N*-(5,6-dichloro-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-(3-methoxy-5,6-dimethyl-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-(6-chloro-3,5-dimethoxy-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-3-methoxy-5-(4-morpholinyl)-2-  
5 pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-5-(2-hydroxyethylamino)-3-methoxy-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-5-dimethylamino-3-methoxy-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-3-methoxy-5-(2-methoxyethoxy)-2-  
10 pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-5-hydroxy-3-methoxy-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-methoxy-5-([2,2']bipyrazinyl)]benzenesulphonamide  
4-[5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinyloxy]benzoic acid  
2,3-Dichloro-*N*-(3,5-dichloro-2-pyrazinyl)benzenesulphonamide  
15 2,3-Dichloro-*N*-{6-chloro-3-methoxy-5-([2-methoxyethyl)amino]-2-  
pyrazinyl}benzenesulphonamide  
*N*-{2-[3-Chloro-5-(2,3-dichlorobenzenesulphonylamino)-6-methoxy-2-  
pyrazinylamino]ethyl}acetamide  
2,3-Dichloro-*N*-[5-(4-hydroxymethyl-1-piperidinyl)-3-methoxy-2-  
20 pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-cyano-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-(6-chloro-3-methoxy-5-methylamino-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-(3-methoxy-5-methylsulphanyl-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-[5-(2,4-difluorophenyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide  
25 [5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinylsulphanyl]acetic acid  
methyl ester  
[5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinylsulphanyl]acetic acid  
2,3-Dichloro-*N*-[5-(2-chlorobenzylsulphanyl)-3-methoxy-2-  
pyrazinyl]benzenesulphonamide  
30 2,3-Dichloro-*N*-[6-chloro-5-(3-hydroxy-1-azetidiny)-3-methoxy-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-methyl-3-(1-oxy-3-pyrazinylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(4-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
35 2,3-Dichloro-*N*-[5-chloro-3-(1-oxy-4-pyridinylmethoxy)-2-  
pyrazinyl]benzenesulphonamide

- 2,3-Dichloro-*N*-[5-chloro-3-(2-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(2-methylsulphanylethoxy)-2-pyrazinyl]benzenesulphonamide  
*N*-(3-Butoxy-5-chloro-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(2-methyl-3-pyridinylmethoxy)-2-  
5 pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(6-methyl-2-pyridinylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(1-oxy-2-pyridinylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
10 3-Chloro-*N*-[5-chloro-3-(3-pyridinylmethoxy)-2-pyrazinyl]-2-methylbenzenesulphonamide  
3-Chloro-*N*-[5-chloro-3-(3-pyridinylmethoxy)-2-pyrazinyl]-2-fluorobenzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(4-methoxyphenylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
*N*-[5-Bromo-6-chloro-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
15 2,3-Dichloro-*N*-[6-chloro-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[6-chloro-3-(2-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
*N*-[5-(2-Aminoethylsulphanyl)-3-(2-pyridinylmethoxy)-2-pyrazinyl]-2,3-  
dichlorobenzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(6-methoxy-3-pyridinylmethoxy)-2-  
20 pyrazinyl]benzenesulphonamide  
*N*-[3-(3-Bromophenylmethoxy)-5-chloro-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide  
3-[6-Chloro-3-(2,3-dichlorobenzenesulphonylamino)-2-pyrazinyloxymethyl]benzoic acid  
methyl ester  
3-[6-Chloro-3-(2,3-dichlorobenzenesulphonylamino)-2-pyrazinyloxymethyl]benzoic acid  
25 2,3-Dichloro-*N*-[5-chloro-3-(3-hydroxymethylphenylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(3-methylaminomethylphenylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-{3-([2-hydroxyethylamino]methyl)phenylmethoxy}-2-  
30 pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-(4-hydroxymethylphenylmethoxy)-2-  
pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[5-chloro-3-{4-([2-hydroxyethylamino]methyl)phenylmethoxy}-2-  
pyrazinyl]benzenesulphonamide  
35 2,3-Dichloro-*N*-[3-(4-hydroxymethylphenylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-chloro-3-(2-hydroxymethylphenylmethoxy)-2-pyrazinyl]benzenesulphonamide

5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxypyrazine-2-carboxylic acid, methyl ester

2,3-Dichloro-*N*-[5-(1-hydroxy-1-methylethyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide

*N*-[5-(2-Aminoethoxy)-3-methoxy-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-{5-[(2-Aminoethyl)thio]-6-chloro-3-methoxy-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

3-[(5-{[(2,3-Dichlorophenyl)sulphonyl]amino}-6-methoxy-2-pyrazinyl)thio]propanoic acid, methyl ester

2,3-Dichloro-*N*-[5-bromo-3-methoxy-6-methyl-2-pyrazinyl]benzenesulphonamide

5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-3-methylpyrazine-2-carboxylic acid, methyl ester

2,3-Dichloro-*N*-[5-(hydroxymethyl)-3-methoxy-6-methyl-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5,6-dichloro-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

3-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)-2-fluorobenzenesulphonamide

3-Chloro-2-fluoro-*N*-[3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

3-{[(2,3-Dichlorophenyl)sulphonyl]amino}pyrazine-2-carboxylic acid, methyl ester

*N*-(5-Bromo-6-chloro-3-methoxy-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide

3-Chloro-5-{[(2,3-dichlorophenyl)sulphonyl]amino}-6-methoxypyrazine-2-carboxylic acid, methyl ester

2,3-Dichloro-*N*-[6-chloro-5-(hydroxymethyl)-3-methoxypyrazin-2-

yl]benzenesulphonamide

2,3-Dichloro-*N*-{3-[(6-methoxy-3-pyridinyl)methoxy]-2-pyrazinyl}benzenesulphonamide

2,3-Dichloro-*N*-[6-chloro-3-methoxy-5-(methoxymethyl)-2-

pyrazinyl]benzenesulphonamide

2-Chloro-*N*-(5-chloro-3-methoxy-2-pyrazinyl)-3-fluorobenzenesulphonamide

2-Chloro-3-fluoro-*N*-(3-methoxy-2-pyrazinyl)benzenesulphonamide

2-Chloro-3-methoxy-*N*-(3-methoxy-2-pyrazinyl)benzenesulphonamide

*N*-[5-Bromo-3-[(2*S*)-2-pyrrolidinylmethoxy]-2-pyrazinyl]-2,3-

dichlorobenzenesulphonamide

5-(2,3-Dichlorobenzenesulphonylamino)-6-(3-pyridinylmethoxy)pyrazine-2-carboxylic

acid, methyl ester



5-{{(2,3-Dichlorophenyl)sulphonyl}amino}-6-(3-pyridinylmethoxy)-2-pyrazinecarboxamide

2,3-Dichloro-*N*-[5-(4-pyridinyl)-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

5 2,3-Dichloro-*N*-[5-(hydroxymethyl)-3-(3-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-(hydroxymethyl)-3-methoxy)-2-pyrazinyl]benzenesulphonamide

*N*-(5-Allyloxy-3-methoxy-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide

2,3-Dichloro-*N*-[5-(3-hydroxy-1-propynyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide

10 *N*-{3-[(5-Bromo-3-pyridinyl)methoxy]-5-chloro-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

2,3-Dichloro-*N*-[5-chloro-3-{[6-(hydroxymethyl)-2-pyridinyl]methoxy}-2-pyrazinyl]benzenesulphonamide

15 2,3-Dichloro-*N*-{5-chloro-3-[(2-methyl-4-oxazolyl)methoxy]-2-pyrazinyl}benzenesulphonamide

2,3-Dichloro-*N*-{3-[(2-methyl-4-oxazolyl)methoxy]-2-pyrazinyl}benzenesulphonamide

*N*-[5-Bromo-3-(phenylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(2-cyclopropylethoxy)pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(3-thienylmethoxy)pyrazinyl]-2,3-dichlorobenzenesulphonamide

20 *N*-{5-Bromo-3-[(2-methyl-3-furanyl)methoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-{5-Bromo-3-[(3-furanyl)methoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-{5-Bromo-3-[(4-fluorophenyl)methoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

25 *N*-{5-Bromo-3-[(3-fluorophenyl)methoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-{5-Bromo-3-[3-(2-pyridinyl)propoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(pentyloxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(propyloxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

30 *N*-[5-Bromo-3-(2-methoxyethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(2-ethoxyethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(2-fluoroethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-{5-Bromo-3-[2-(1*H*-imidazol-1-yl)ethoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

35 *N*-{5-Bromo-3-[3-(3-pyridinyl)propoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-[2-(methylamino)ethoxy]-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-{5-Bromo-3-[3-(4-hydroxyphenyl)propoxy]-2-pyrazinyl}-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(2-phenoxyethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

*N*-[5-Bromo-3-(cyclopropylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

5 *N*-[5-Bromo-3-(3-phenoxypropoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

2,3-Dichloro-*N*-(5-ethoxy-3-methoxy-2-pyrazinyl)benzenesulphonamide

2,3-Dichloro-*N*-[3-methoxy-5-([1,2,4]-1-triazolyl)-2-pyrazinyl]benzenesulphonamide

2-[5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinylsulphanyl]-*N*-methylacetamide

10 2-[5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinylsulphanyl]acetamide

2,3-Dichloro-*N*-[5-(4-fluorobenzylsulphanyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-cyanomethylsulphanyl-3-methoxy-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[3-methoxy-5-([1,2,4]-3-oxadiazolylmethylsulphanyl)-2-

15 pyrazinyl]benzenesulphonamide

*N*-[5-(2-Aminoethylsulphanyl)-3-methoxy-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

2,3-Dichloro-*N*-[3-methoxy-5-(5-methyl-3-isoxazolylmethoxy))-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-(5-dimethylaminomethyl-2-furanylmethoxy)-3-methoxy-2-

20 pyrazinyl]benzenesulphonamide

*N*-[5-Bromo-3-(5-dimethylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

2,3-Dichloro-*N*-[5-(2-hydroxyethylsulphanyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide

25 2,3-Dichloro-*N*-{5-[2-(ethylureido)ethylsulphanyl]-3-methoxy-2-pyrazinyl}benzenesulphonamide

2,3-Dichloro-*N*-[3-(5-dimethylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[6-chloro-3-(5-dimethylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]benzenesulphonamide

30 2,3-Dichloro-*N*-[6-chloro-3-(5-methylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-chloro-3-(5-dimethylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]benzenesulphonamide

35 2,3-Dichloro-*N*-[3-(5-methylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]benzenesulphonamide

*N*-(5-Bromo-3-methoxypyrazinyl)-2-cyanobenzenesulphonamide  
*N*-(5-Bromo-3-methoxypyrazinyl)-2,3-dichloro-4-fluorobenzenesulphonamide  
2,3-Dichloro-*N*-[3-methoxy-5-(4-morpholinylmethyl)-2-pyrazinyl]benzenesulphonamide  
*N*-(3-Allyloxy-5-chloro-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide  
5 2,3-Dichloro-*N*-[5-chloro-3-(2-propynyloxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-[3-(2-propynyloxy)-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-(5-cyano-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-{3-methoxy-5-[(2*S*)-pyrrolidin-2-ylmethoxy]-2-  
pyrazinyl}benzenesulphonamide hydrochloride  
10 2,3-Dichloro-*N*-{6-chloro-3-methoxy-5-[(2*R*)-2-pyrrolidinylmethoxy]-2-  
pyrazinyl}benzenesulphonamide Hydrochloride  
2,3-Dichloro-*N*-[3-methoxy-5-(2-pyridinylmethoxy)-2-pyrazinyl]benzenesulphonamide  
Hydrochloride  
2,3-Dichloro-*N*-(3-methoxy-6-methyl-2-pyrazinyl)benzenesulphonamide  
15 2,3-Dichloro-*N*-[3-methoxy-5-(1*H*-1,2,4-triazol-1-ylmethyl)-2-  
pyrazinyl]benzenesulphonamide  
*N*-(3-(5-Aminomethyl-2-furanylmethoxy)-5-chloro-2-pyrazinyl)-2,3-dichloro-  
benzenesulphonamide  
*N*-(3-(5-Aminomethyl-2-furanylmethoxy)-2-pyrazinyl)-2,3-dichlorobenzenesulphonamide  
20 2,3-Dichloro-*N*-[3-methoxy-5-(2-propyn-1-yloxy)-2-pyrazinyl]benzenesulphonamide  
{[5-(2,3-Dichlorophenylsulfonylamino)-6-methoxy-2-pyrazinyl]oxy}acetic acid, methyl  
ester  
*N*-[5-(2,3-Dichlorophenylsulfonylamino)-6-methoxy-2-pyrazinyl]-2-hydroxyacetamide  
6-(2,3-Dichlorophenylsulfonylamino)-5-methoxy-2-pyrazinecarboxylic acid, methyl  
25 ester  
2,3-Dichloro-*N*-[6-(hydroxymethyl)-3-methoxy-2-pyrazinyl]benzenesulphonamide  
2,3-Dichloro-*N*-(5-methanesulphonyl-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2-[5-(2,3-Dichlorobenzenesulphonylamino)-6-methoxy-2-pyrazinyloxy]-*N,N*-diethyl-  
acetamide  
30 2,3-Dichloro-*N*-{5-[2-(dimethylamino)ethylsulphanyl]-3-methoxy-2-  
pyrazinyl}benzenesulphonamide  
2,3-Dichloro-*N*-(5-difluoromethyl-3-methoxy-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-4-fluoro-*N*-(3-methoxy-2-pyrazinyl)benzenesulphonamide  
2,3-Dichloro-*N*-{5-chloro-3-[1-(cyclopropyl)ethoxy]-2-pyrazinyl}benzenesulphonamide  
35 2,3-Dichloro-*N*-[5-chloro-3-(5-formyl-2-furanylmethoxy)-2-  
pyrazinyl]benzenesulphonamide

2,3-Dichloro-*N*-[5-chloro-3-(5-cyclopropylaminomethyl-2-furanylmethoxy)-2-pyrazinyl]-benzenesulphonamide

*N*-[5,6-*bis*-(Hydroxymethyl)-3-methoxy-2-pyrazinyl]-2,3-dichlorobenzenesulphonamide

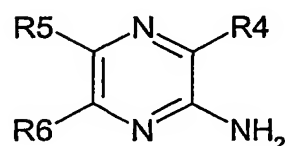
*N*-[3-[(2-amino-4-oxazolyl)methoxy]-5-chloro-2-pyrazinyl]-2,3-

dichlorobenzenesulphonamide

and pharmaceutically acceptable salts and solvates thereof.

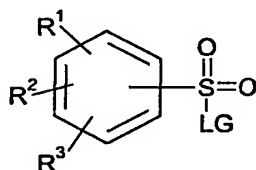
7. A process for the preparation of compound (I) which comprises:

(a) reaction of a compound of formula (II):



(II)

where R<sup>4</sup>, R<sup>5</sup> and R<sup>6</sup> are as defined in formula (I) or are protected derivatives thereof with a compound of formula (III):



(III)

where R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are as defined in formula (I) or are protected derivatives thereof and LG is a leaving group, or

(b) for compounds where R<sup>4</sup> is C<sub>1-6</sub> alkoxy where the alkyl group may form a 3-6 membered saturated ring or may be substituted with 1-3 fluorine atoms or a cyano group; C<sub>3-6</sub> alkenyloxy or C<sub>3-6</sub> alkynyloxy where either may be optionally substituted with hydroxy or NR<sup>14</sup>R<sup>15</sup>;

OC<sub>1-6</sub> alkyl-X-C<sub>1-6</sub> alkyl where the alkyl groups may form a 3-6 membered saturated ring;

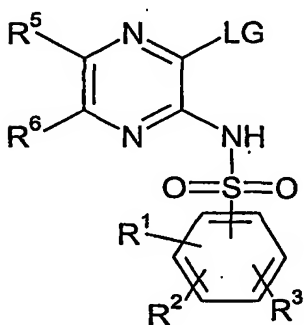
OC<sub>1-6</sub> alkylR<sup>11</sup>, or OC<sub>2-6</sub> alkyl-X-R<sup>11</sup> where the alkyl group may form a 3-6 membered

saturated ring and is optionally substituted with 1-3 groups selected from hydroxy,

halogen, NR<sup>14</sup>R<sup>15</sup>, SR<sup>13</sup>, S(O)<sub>2</sub>R<sup>13</sup>, S(O)R<sup>13</sup>; or

OC<sub>1-6</sub> alkylR<sup>16</sup>;

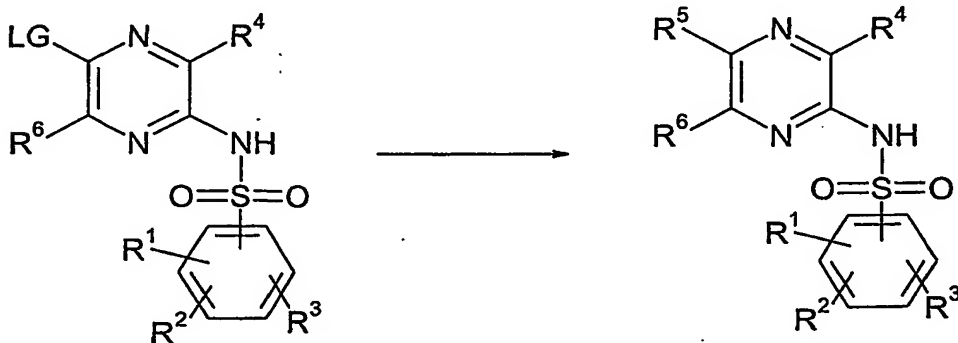
treating a compound of the formula (VI), where LG is a leaving group:



(VI)

with a compound of formula (V) in the presence of a suitable base, or

(c) for compounds of structure (I), where R<sup>5</sup> is an optionally substituted aryl or heteroaryl ring as defined above, reacting a compound of formula (XI) or (VII) where LG is a leaving group with an aryl or heteroaryl boronic acid in the presence of a palladium catalyst and a suitable base at elevated temperature:



(VII)

(I)

and optionally thereafter process (a), (b) or (c)

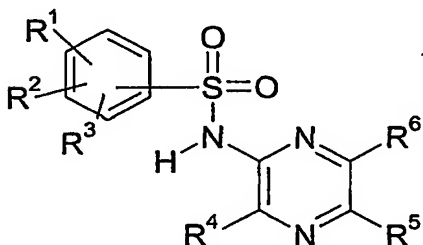
- removing any protecting groups,
- converting a compound of formula (I) to a further compound of formula (I)
- forming a pharmaceutically acceptable salt.

8. A pharmaceutical composition comprising a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in claim 1 in association with a pharmaceutically acceptable adjuvant, diluent or carrier.

9. A process for the preparation of a pharmaceutical composition as claimed in claim 2 which comprises mixing a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as claimed in claim 1 with a pharmaceutically acceptable adjuvant, diluent or carrier.

10. A compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof for use in therapy.

11. A method of treating a chemokine mediated disease wherein the chemokine binds to one or more chemokine receptors, which comprises administering to a patient a therapeutically effective amount of a compound of formula (IB), or a pharmaceutically acceptable salt or solvate thereof:



(IB)

in which:

R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are independently hydrogen, halogen, cyano, CF<sub>3</sub>, or C<sub>1-6</sub> alkyl;

R<sup>4</sup> is halogen, CO<sub>2</sub>R<sup>12</sup>,

C<sub>1-6</sub> alkoxy where the alkyl group may form a 3-6 membered saturated ring or may be substituted with 1-3 fluorine atoms or a cyano group;

C<sub>3-6</sub> alkenyloxy or C<sub>3-6</sub> alkynyloxy where either may be optionally substituted with hydroxy or NR<sup>14</sup>R<sup>15</sup>;

OC<sub>1-6</sub> alkyl-X-C<sub>1-6</sub> alkyl where the alkyl groups may form a 3-6 membered saturated ring;

OC<sub>1-6</sub> alkylR<sup>11</sup>, or OC<sub>2-6</sub> alkyl-X-R<sup>11</sup> where the alkyl group may form a 3-6 membered saturated ring and is optionally substituted with 1-3 groups selected from hydroxy,  
 5 halogen, NR<sup>14</sup>R<sup>15</sup>, SR<sup>13</sup>, S(O)<sub>2</sub>R<sup>13</sup>, S(O)R<sup>13</sup>;

OC<sub>1-6</sub> alkylR<sup>16</sup>;

R<sup>5</sup> and R<sup>6</sup> are independently hydrogen, cyano, halogen, CO<sub>2</sub>R<sup>12</sup>, CONR<sup>14</sup>R<sup>15</sup>;

10 C<sub>1-6</sub> alkyl optionally substituted by hydroxy, NR<sup>14</sup>R<sup>15</sup>, or 1-3 fluorines;

C<sub>1-6</sub> alkylR<sup>11</sup> or XCH(R<sup>11</sup>)C<sub>1-6</sub> alkyl or XCH(R<sup>16</sup>)C<sub>1-6</sub> alkyl where the alkyl group may be optionally substituted with 1-3 groups selected from hydroxy, and NR<sup>14</sup>R<sup>15</sup>;

15 NR<sup>14</sup>R<sup>15</sup>; N(R<sup>11</sup>)R<sup>11</sup>; X-(CH<sub>2</sub>)<sub>q</sub>NR<sup>14</sup>R<sup>15</sup>; (CH<sub>2</sub>)<sub>n</sub>NR<sup>14</sup>R<sup>15</sup>;

C<sub>3-6</sub> alkynyl or C<sub>3-6</sub> alkenyl optionally branched and optionally substituted with 1-3 groups selected from hydroxy, cyano, halogen and =O;

20 R<sup>11</sup>; X-R<sup>11</sup>; X-R<sup>12</sup>; X-C<sub>1-6</sub>alkylR<sup>16</sup>; X-R<sup>16</sup>; X-(CH<sub>2</sub>)<sub>n</sub>CO<sub>2</sub>R<sup>12</sup>; X-(CH<sub>2</sub>)<sub>n</sub>CONR<sup>14</sup>R<sup>15</sup>;  
 X-(CH<sub>2</sub>)<sub>n</sub>R<sup>11</sup>; X-(CH<sub>2</sub>)<sub>n</sub>CN; X-(CH<sub>2</sub>)<sub>q</sub>OR<sup>12</sup>; (CH<sub>2</sub>)<sub>n</sub>OR<sup>12</sup>;  
 (CH<sub>2</sub>)<sub>n</sub>-X-R<sup>11</sup>; X-(CH<sub>2</sub>)<sub>q</sub>NHC(O)NHR<sup>12</sup>; X-(CH<sub>2</sub>)<sub>q</sub>NHC(O)R<sup>12</sup>;  
 X-(CH<sub>2</sub>)<sub>q</sub>NHS(O)<sub>2</sub>R<sup>12</sup>; X-(CH<sub>2</sub>)<sub>q</sub>NHS(O)<sub>2</sub>R<sup>11</sup>; X-C<sub>3-6</sub>alkenyl; X-C<sub>3-6</sub>alkynyl;

25 n is 1, 2, 3, 4 or 5;

q is 2, 3, 4, 5 or 6;

30 X is NR<sup>13</sup>, O, S, S(O), S(O)<sub>2</sub>;

R<sup>11</sup> is an aryl group or a 5-7 membered heteraromatic ring containing 1-4 heteroatoms selected from nitrogen, oxygen or sulphur each of which can be optionally substituted by 1-3 groups selected from halogen, C(O)NR<sup>14</sup>R<sup>15</sup>, C(O)OR<sup>12</sup>, hydroxy, =O, =S, CN, NO<sub>2</sub>  
 35 NR<sup>14</sup>R<sup>15</sup>, X(CH<sub>2</sub>)<sub>q</sub>NR<sup>14</sup>R<sup>15</sup>, (CH<sub>2</sub>)<sub>n</sub>NR<sup>14</sup>R<sup>15</sup>, (CH<sub>2</sub>)<sub>n</sub>OH, SR<sup>13</sup>, S(O)R<sup>13</sup>, S(O)<sub>2</sub>R<sup>13</sup>

C<sub>1-6</sub> alkyl-X-C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl or C<sub>1-6</sub> alkoxy where the alkyl group may form a 3-6 membered ring or is optionally substituted with 1-3 groups selected from hydroxy, halogen, NR<sup>14</sup>R<sup>15</sup>, SR<sup>13</sup>, S(O)R<sup>13</sup>, S(O)<sub>2</sub>R<sup>13</sup>;

- 5 R<sup>12</sup> and R<sup>13</sup> are independently hydrogen or C<sub>1-6</sub> alkyl where the alkyl group may be substituted with 1-3 fluorine atoms or may form a saturated 3-6 membered ring;

R<sup>14</sup> and R<sup>15</sup> are independently hydrogen, C<sub>1-6</sub> alkyl, C<sub>3-6</sub> cycloalkyl or (CH<sub>2</sub>)<sub>q</sub>OH,

- 10 or R<sup>14</sup> and R<sup>15</sup> together with the nitrogen atom to which they are attached form a 4-8 membered saturated ring containing 1-3 heteroatoms selected from nitrogen, oxygen and sulphur and optionally substituted by C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl-OH, or hydroxy; and

- 15 R<sup>16</sup> is a 4-8 membered saturated ring containing 1-3 heteroatoms selected from nitrogen, oxygen or sulphur and optionally substituted with 1-3 groups selected from hydroxy, cyano, halogen and =O,

12. A method according to claim 11 in which the chemokine receptor belongs to the CCR chemokine receptor subfamily.

20

13. A method according to claim 11 or 12 in which the chemokine receptor is the CCR4 receptor.

25

14 A method of treating an inflammatory disease in a patient suffering from, or at risk of, said disease, which comprises administering to the patient a therapeutically effective amount of a compound of formula (IB), or a pharmaceutically acceptable salt or solvate thereof, as defined in claim 11.

30

15. A method according to claim 14, wherein the disease is asthma.